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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,999	02/20/2004	Charles M. Potter	1021-062USD1	4355
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Shumaker & Sieffert, P.A. 1625 Radio Drive, Suite 300 Woodbury, MN 55125				
EXAMINER				
LIN, SHEW FEN				
ART UNIT		PAPER NUMBER		
2166				
MAIL DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/783,999

Applicant(s)

POTTER ET AL.

Examiner

SHEW-FEN LIN

Art Unit

2166

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-16 and 22-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-16, 22-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

- a. This action is taken in response to Request for Continued Examination filed on 12/11/2008.
- b. Claims 12-13 and 22-25 are amended and claims 1-11 and 19-21 are canceled. Claims 26-27 are new. Claims 12-16 and 22-27 are pending in this Office Action.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 11, 2008 has been entered.

Response to Amendments

In view of the cancellation of claims 1-11, 19-21 and amendment to claims 11 and 22, the Examiner withdraws the claim objection and 35 U.S.C. 101 rejection stated in the previous office action.

In view of the amendment to claims 24 and 25, the Examiner withdraws the 35 U.S.C. 112 rejection stated in the previous office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12-16, and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joy Mundy ("Using Partitions in a Microsoft SQL Server 2000 Data Warehouse", February 2001, [http://technet.microsoft.com/en-us/library/aa902650\(SQL.80\).aspx](http://technet.microsoft.com/en-us/library/aa902650(SQL.80).aspx), hereinafter Mundy) in view of Colossi et al. (US Patent Application Publication 2004/0139061, hereinafter Colossi).

As to claim 12, Mundy discloses a method of transforming a body of data into a dimension-based partitioned cube (page 1, using partitions in data warehouse), the method comprising:

Partitioning, by a computer executing code stored in a computer-readable memory (page 8, multiprocessor machine), the data into one or more dimension-based partitions (page 7, partitioned cubes), the data partitioned along a single partitioning dimension (page 10, partitions related to the Dates dimension);

creating member cubes corresponding to the one or more dimension-based partitions (pages 10-11, create new partitions, managing the partitioned cube);

creating a control cube having metadata about the member cubes (pages 6, 9, meta data, partition management system is driven by meta data, the partition meta data stores the information necessary to populate the partition), the metadata including hierarchy information of the single partitioning dimension for the member cubes; and

providing, by the control cube, control information used by a query engine to route queries to the member cubes and aggregate the data that is distributed over the member cubes (pages 2-3, When the partitioned database is properly designed, the relational engine will include in a query plan only the partition(s) necessary to resolve that query. For example, if the database is partitioned by month and a query is conditioned on January 2000, the query plan will include only the partition for January 2000. The resulting query will perform well against the partitioned table, about the same as against a properly indexed combined table with a clustered index on the partitioning key, page 6, populating the partitions using meta data, page 10, Each partition can have its own storage and aggregation plan).

Mundy does not explicitly disclose the metadata including hierarchy information of the single partitioning dimension for the member cubes.

Colossi discloses a control cube having the metadata including hierarchy information of the single partitioning dimension for the member cubes (Fig. 5, Para. 0068, 0078, 0082, 0083, cube metadata object has a specific set of similar but more restrictive metadata objects derived from the parent cube model metadata object including: cube dimensions, cube hierarchies, and cube facts)

Therefore, it would have been obvious to one skilled in the art at the time of the present invention to modify the method of Mundy to include cube metadata object as taught by Colossi in order to retrieve information based on the information stored in the metadata (Colossi, Para. 0067-0068).

As to claim 13, Mundy discloses the method as claimed in claim 12, wherein the data is partitioned along a time dimension (page 4, partitioning dimension, Dates).

As to claims 14-16, Mundy discloses the method claimed in claim 13, wherein the data is partitioned into equidistant, non-equidistant or sliding window of time intervals (time [date] dimension is usually the first partition dimension, pages 7 and 8, and can be choose a different granularity such as day, week, month or year, page 5. It is common to define a partition plan that drills down on one part of the cube. For example, recent data may be partitioned by day or week, older data by month or year, pages 9 and 15. Different time interval partition, equal interval: days, non-equal interval: day-week, sliding window interval: day, week, month, year, is used to build partition in order to minimize the number of active partitions).

As to claim 22, Mundy discloses the method as claimed in claim 12, wherein creating the control cube further comprises: including in the metadata of the control cube a description of what the member cubes are, and how the member cubes are deployed in the metadata of the control cube (page 6, partition name, ranges of data in partition..., see also Colossi, Fig. 5).

As to claim 23, Mundy discloses the method as claimed in claim 12, wherein aggregating the data that is distributed over the member cubes comprises accessing an entire partitioned dimension relative to the member cubes (pages 6, 9, meta data, partition management system is driven by meta data, the partition meta data stores the information necessary to populate the partition, pages 10, 11, aggregation plans for each partition)

As to claim 24, Mundy discloses the method as claimed in claim 12, further comprising adding metadata of an additional member cube to the control cube (page 6, creating new partitions).

As to claim 25, Mundy discloses method as claimed in claim 12, further comprising removing metadata of a member cube of the member cubes from the control cube (page 10, drop old partitions, merge partitions).

As to claim 26, Mundy in view of Colossi discloses the method as claimed in claim 12, further comprising: storing data along one or more other dimensions in one or more of the member cubes (page 2, partition a dimension, such as date, pages 7-8, Partitions can be stored

locally or distributed across multiple physical servers); and storing one or more measures in the one or more of the member cubes (Colossi, Figs. 5, 6, 18A), wherein the metadata further includes a listing of the one or more other dimensions and a listing of the one or more measures (Colossi, Fig. 10, Para. 0021, 0074, 0090, 0101-104).

As to claim 27, Mundy in view of Colossi discloses the method as claimed in claim 12, further comprising: partitioning the data into one or more additional dimension-based partitions (page 11, cube is partitioned by another dimension in addition to the date, a cube is partitioned by month and product brand), wherein one of the member cubes comprises an additional control cube (page 6, metadata, Colossi, Fig. 5, Para. 0021., 0068); and creating additional member cubes corresponding to the one or more additional dimension-based partitions (page 11, new member for product), wherein the additional control cube has additional metadata about the additional member cubes (Colossi, Fig. 10, Para. 0021, 0074, 0090, 0101-104).

Response to Remarks

Applicant's arguments have been fully and carefully considered but are moot in view of the new ground(s) of rejection. Refer to the corresponding sections of the claim analysis for details.

Related Prior Arts

The following list of prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Anjur; Vaishnavi et al., US 7028046 B2, "Method of splitting a multi-dimensional cube between a multi-dimensional and a relational database".
- Guthrie; Christine Pac et al., US 6587854 B1, "Virtually partitioning user data in a database system".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shew-Fen Lin whose telephone number is 571-272-2672. The examiner can normally be reached on 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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February 3, 2009

/Hosain T Alam/

Supervisory Patent Examiner, Art Unit 2166